STD-403 STEP Motor driver

User manual

(DOC NO:050330)

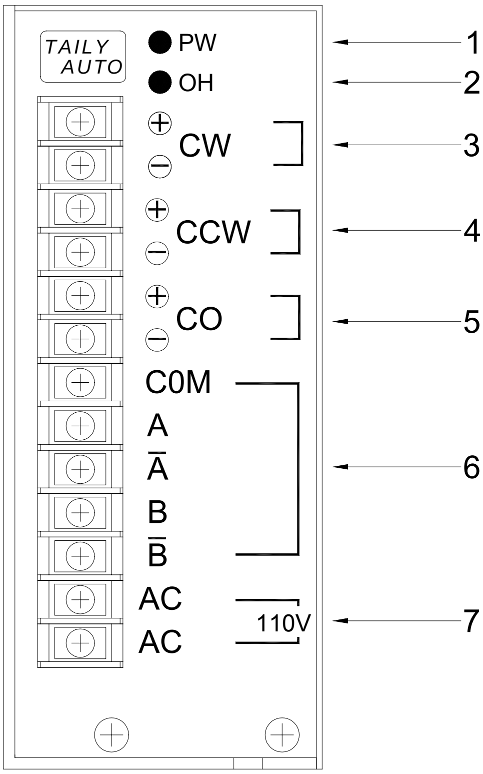
1. INTRODUCTION

The STD-403 stepper motor driver is unipolar, PWM chopper, constant current regulated unit, designed to operate with a wide range of step motors. Manufactured by TAILY AUTOMATION, Is suitable to drives 2 or 4 phase step motor, the driver is high torque, easy to interface and use, high performance and low cost.

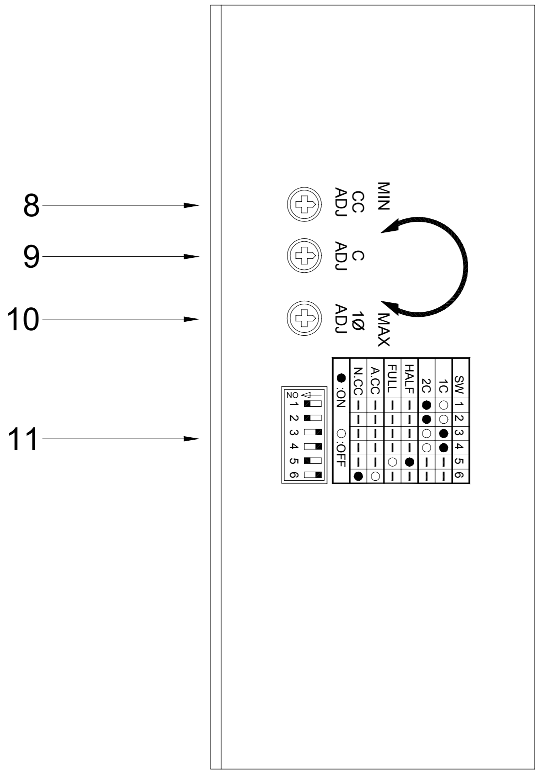
2. SPECIFICATIONS

Model	STD-403
Suitable motor	2 or 4 phase stepper motor
Control mode	Unipolar, PWM constant current regulation
Drive current	3A (MAX)
Excitation mode	Full step 2 phase excitation Half step 1-2 phase excitation
Power input	AC110V 50/60HZ 200VA
Functions select	"1C/2C" pulse input mode selection
	"Full step/Half step" selection
	"Standby" current selection
Current adjustment	"Standby" current adjust
	"2 phase excitation" current adjust
	"1 phase excitation" current adjust
Input signals	CW/PUS input
	CCW/DIR input
	Current OFF input
Over temperature	Over temperature protect (with LED indicate)
Ambient temperature	0℃~40℃
Dimension	45(W)×150(D)×127(H) mm
Weight	0.75 kg

3. PANEL DESCRIPTION



CONNECTION PANEL



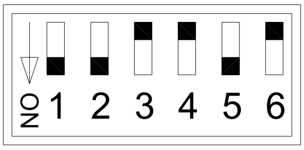
SELECTION PANEL

NO	NAME	DESCRIPTION	FACTORY SET
1	POWER	Power indicate	
2	OH	Over temperature indicate	
3	CW	CW/PUS pulse input terminals	CW
4	CCW	CCW/DIR pulse input terminals	CCW
5	CO	Motor current off input terminals	
6	COM A,A-,B,B-	Stepper motor connection terminals	
7	AC	AC 110V connection terminals	
8	CC-ADJ	“Standby” current adjust	0.5A
9	C-ADJ	“2 phase excitation ” current adjust	2A
10	1Φ-ADJ	“1 phase excitation” current adjust	1.4A
11	SW	Function select switch	2C\HALF\A.CC

4. FUNCTION SELECT

SW	1	2	3	4	5	6
1C	○	○	●	●	—	—
2C	●	●	○	○	—	—
HALF	—	—	—	—	●	—
FULL	—	—	—	—	○	—
A.CC	—	—	—	—	—	○
N.CC	—	—	—	—	—	●

● :ON ○ :OFF



Pulse input mode selection：

1C： SW(3,4) ON, SW(1、2)OFF=(1 pulse mode).

2C： SW(1,2) ON, SW(3、4)OFF=(2 pulse mode).

Step mode selection：

HALF： SW(5) ON =0.9˚/step(400step/rev).

FULL： SW(5) OFF=1.8˚/step(200step/rev).

Standby current mode selection：

A.CC： SW(6) OFF= automatically reduce at standby

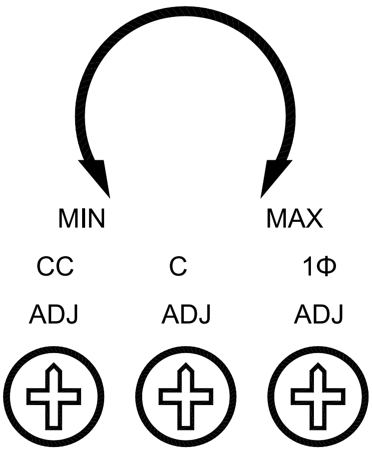
N.CC： SW(6) ON= Not reduce at standby

＊ **Factory set as：2C, HALF, A.CC.**

5. CURRENT ADJUSTMENT

◆ The output current has been adjusted by factory before delivery.

◆ The output current should measure by a DC (DC 5A) Ampere meter, connected in series between the terminal COM and step motor COM_A or COM_ B, to measured current value.



CC-ADJ：[the SW (6) must be off].
To adjusted output current at standby condition.
The motor current is automatically reduction in this value at standby, when selected **A.CC** mode

C-ADJ：[the SW (6) must be on and the motor at 2 phase excitation condition].
To adjusted output current at 2 phases excitation condition.

1Φ-ADJ：[the SW (5)and SW (6) must be on and the motor at 1 phase excitation condition].
To adjusted output current at 1 phase excitation condition.
This current level is increased in the 1 phase excitation condition to help maintain the torque on intermediate steps.

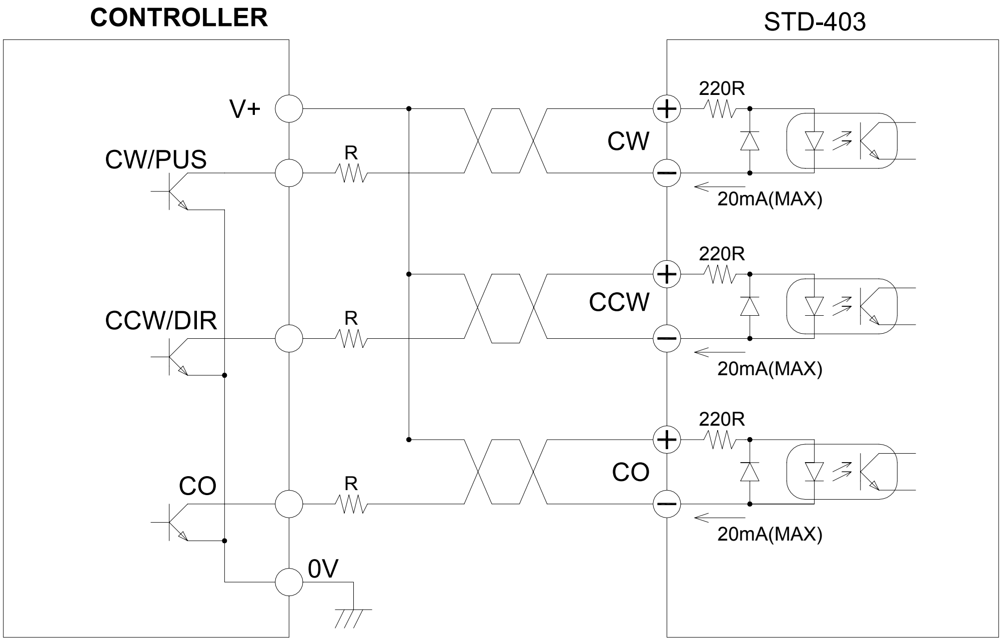
6. INPUT SIGNALS

STD-403 with three input signals **(CW)**、**(CCW)**、**(CO)**.

◆ The **(CW)**、**(CCW)** with two input mode, select by function selection switch.

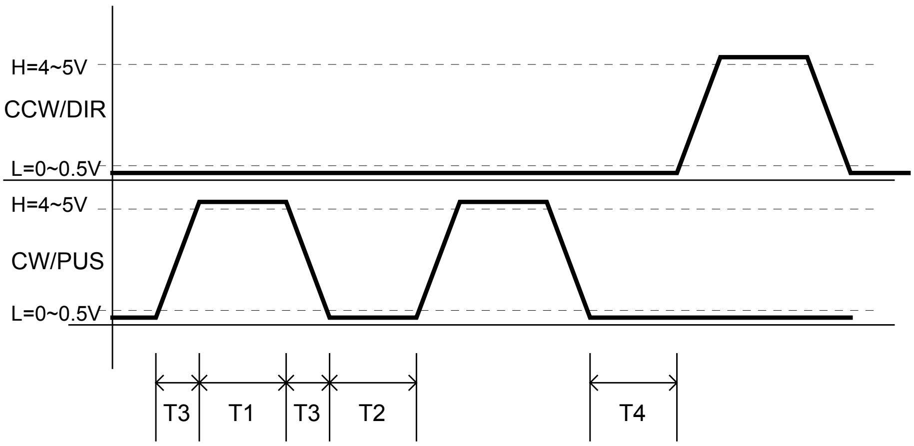
Pulse input mode selection	CW	CCW
1C	Pulse input	Direction input
2C	CW pulse input	CCW pulse input

◆ **CO**：when this input is low lever, the driver will turn of output current to free the step motor from excitation condition.



◆ **Signals wave**：

T1,T2,T4 = 20us (min).　T3= 2us (max).

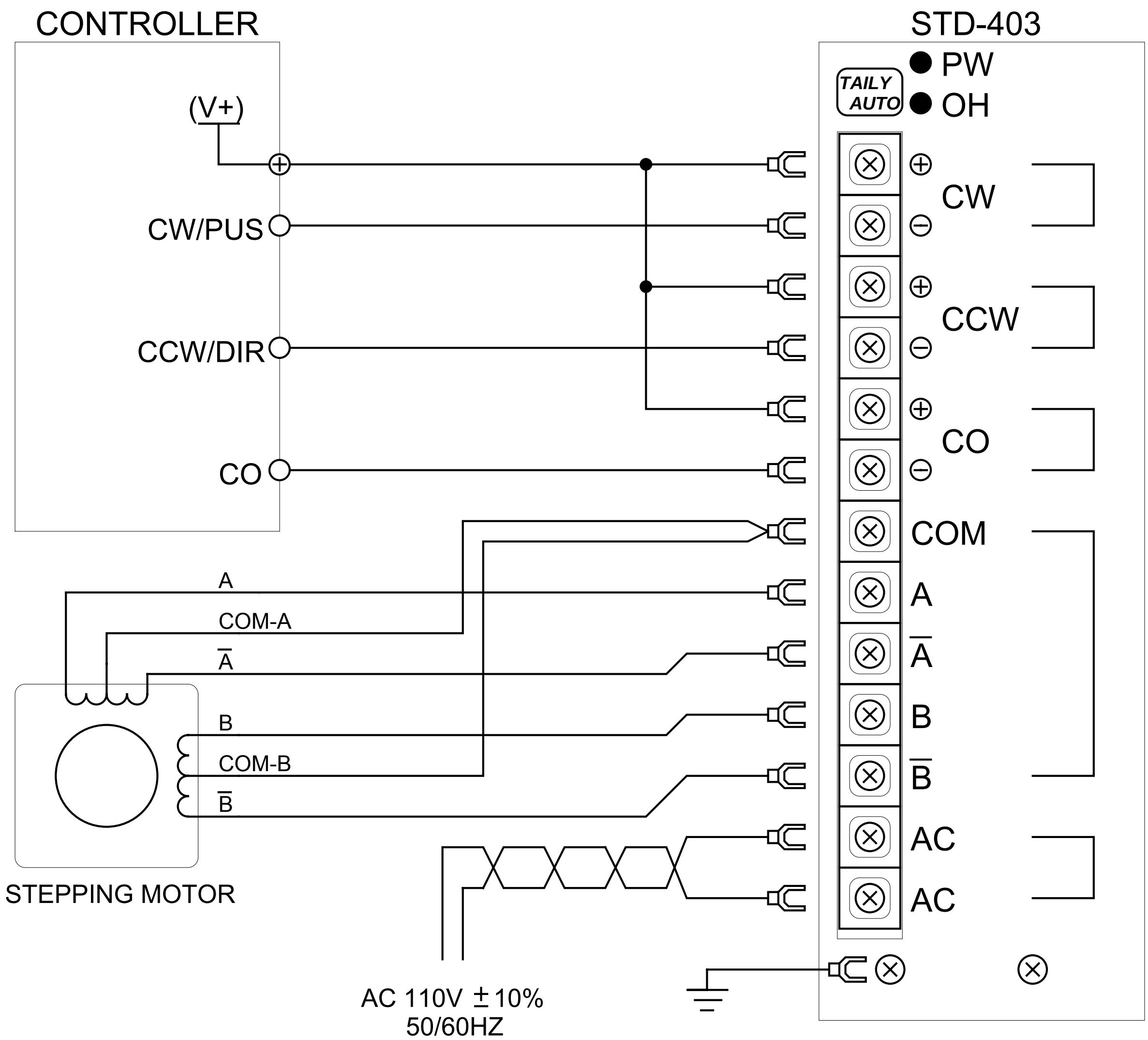


7. INSTALLATION AND WIRING

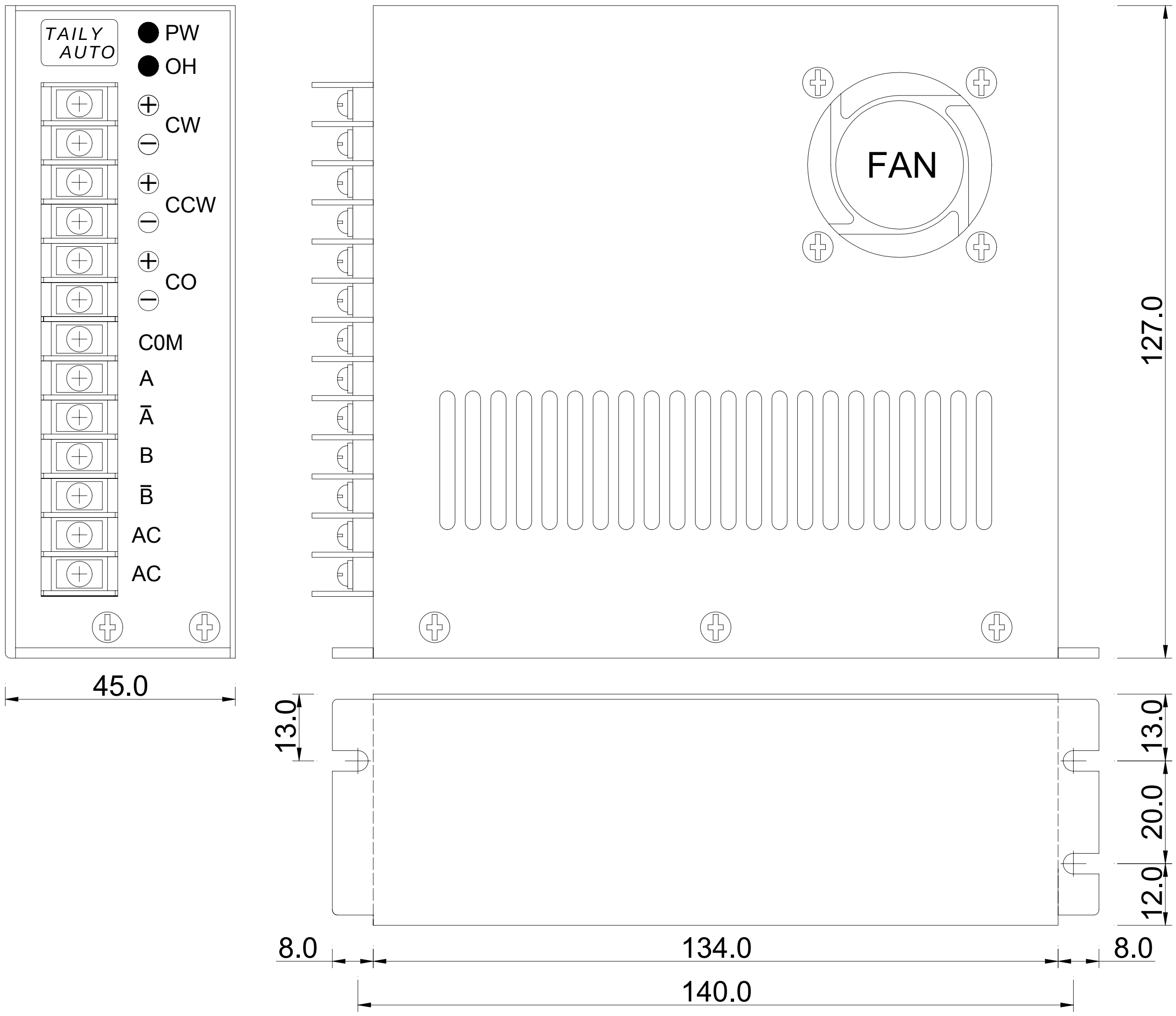
◆ **Requirement and Safety precautions：**

1. The driver should be operated in an environment that is protected from moisture, corrosive gases, oil mist, and airborne dust, metallic particles.
2. The driver should be operated free from magnetic noise, if not, use a noise filter to minimize of electromagnetic interference.
3. Normally operate under 10℃~40℃environment, do not block the intake/exhaust ports of the driver. Otherwise, a fault may occur.
4. Do not connect or disconnect connectors while power is applied to the driver.
5. Make sure all the terminals are connected to the correct position before turn on the power.
6. Make sure that the power source supplies the correct voltage and is capable of supplying the required current to the driver.
7. Make sure that the driver is properly grounded.

◆ **Wiring diagram：**



8. DIMENSION


TAILY
AUTO
PW
OH
CW
CCW
CO
C0M
A
Ā
B
B̄
AC
AC
FAN
45.0
127.0
13.0
13.0
20.0
12.0
8.0
134.0
8.0
140.0